

JP60-947

(19) Patent Ministry of Japan (JP)

(12) Patent Publication (B2)

(11) Kokoku No: JP60-947

(22)(44) Announcement: Jan. 11, 1985

Number of the Invention: 1

(54) Electret

(21) Application No: JP53-126108 (22) Oct. 16, 1978

(65) Laid-Open No: JP55-53410 —

(43) Publication Date: April 18, 1980

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Examiner: H. Oda

(57) Claims

1. An electret comprised of 4-methyl-1-pentene and at least one compound selected from

- (a) a compound containing phenol hydroxyl group;
- (b) higher aliphatic carboxylic acid and its metal salts;
- (c) thiocarboxylate compound;
- (d) phosphorous compound, and
- (e) ester compound.

acid-N-monoethyl amide, maleic acid N, N-diethyl amide, maleic acid N-monobutyl amide, maleic acid N,N-dibutyl amide, monoamide fumarate, diamide fumarate, fumaric acid N-monoethyl amide, fumaric acid N, N-diethyl amide, fumaric acid N-monobutyl amide, fumaric acid N,N-dibutyl amide, maleimide, N-butyl maleimide, N-phenyl maleimide, acrylic acid 2-hydroxyethyl, acrylic acid 2-hydroxypropyl, N,N'-dimethyl aminoethyl methacrylate, acryl amide, and sodium acrylate. Monomers such as acrylonitrile, 4-vinylpyridine, styrene, and vinyl acetate can also be mentioned.

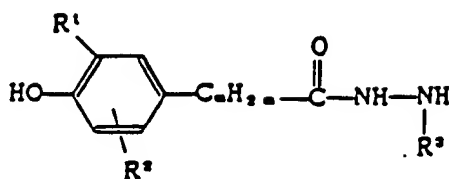
4-methyl-1-pentene can be denatured by known methods with the above monomers. The monomer concentration level in the polymer is 10^{-4} - 100 wt%, preferably 10^{-2} - 10 wt%.

The following compounds may be added to 4-methyl-1-pentene.

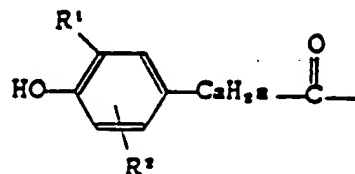
(a) Compounds containing phenol hydroxyl group:

2,6-di-tert-butyl-p-cresol (BHT), 2,6-di-tert-butylphenol, 2,4-dimethyl-6-tert-butylphenol, 2-methyl-4,6-di-nonylphenol, butyl-hydroxy anisole, styrenated phenyl, 2,4,6-tri-tert-butyl phenol, n-octadecyl-3-(4'-hydroxy-3',5'-di-tert-butylphenol) propionate; 4,4-dihydroxy diphenyl, 2,2'-methylene bis(4-methyl-6-tert-butylphenol), 2,2'-methylene bis(4-ethyl-6-tert-butyl phenol), 2,2'-methylene bis(4-methyl-6-cyclohexyl phenol), 4,4'-methylene bis(2,6-di-tert-butyl phenol), 4,4'-butylidene bis(3-methyl-6-tert-butyl phenol), 1,1-bis(4-hydroxy phenyl) cyclohexane, 2,2'-dihydroxy-3,3'-di-(α -methyl cyclohexyl)-5,5'-dimethyl-diphenylmethane, 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxy benzyl)benzene, tris(2-methyl-4-hydroxy-5-tert-

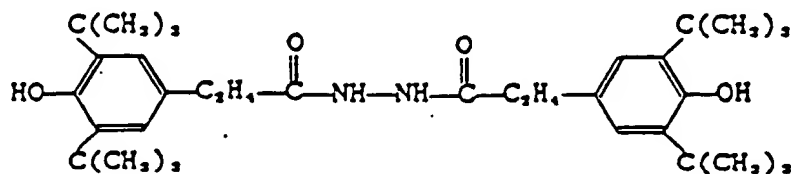
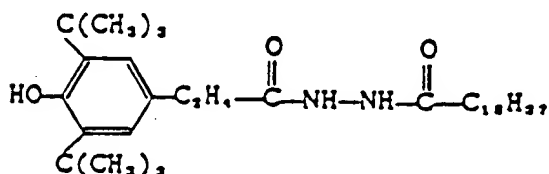
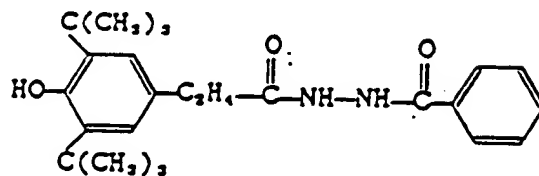
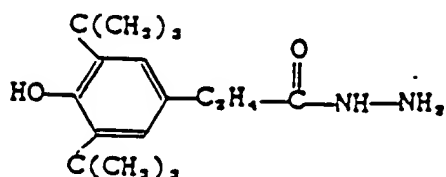
Also, hydrazine compounds shown in the formula below:



(R^1 is C1-C12 alkyls, R^2 is H or C1-C12 alkyls, R^3 is H, C2-C18 alkanoyl, or radicals shown in

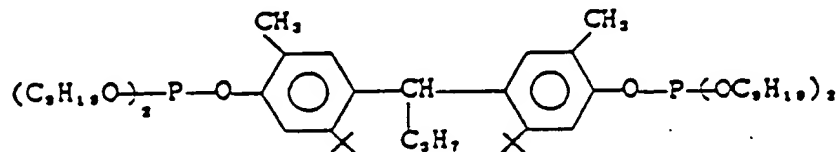
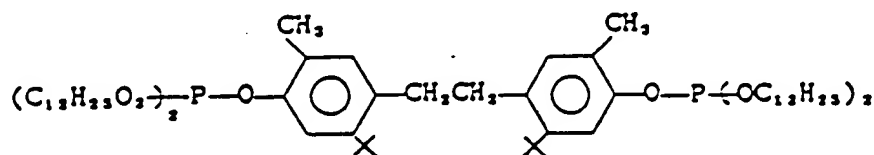
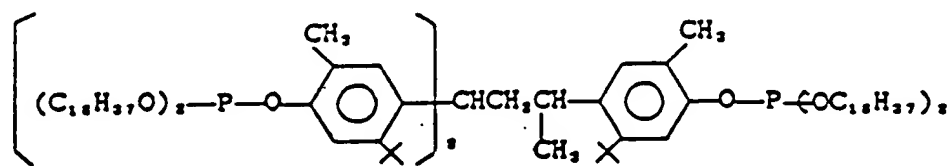


$0 \leq m \leq 5$), and examples are:



1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxy benzyl) benzene, or tris(1-methyl-4-hydroxy-5-tert-butyl benzyl)1,1,3-butene.

For R^4 and R^5 , higher alkyls with C9 or above are desirable. In this case, di-stearyl pentaerithritol di-phosphite and compounds shown below:



In the compounds, + is tert-butyl.

(e) Ester compounds

Compounds with ester bonds, such as Iruganox 1010, can be mentioned.

The weight composition of one or a combination of the above described compounds (a) - (e) is 10^{-2} - 100 parts for 100 parts polymer, and 10^{-2} - 10 parts is preferred.

Practical Examples 2 - 8

In practical example 1, compounds shown in table 1 were used. The results are shown in the table.

(1) Compounds

P. ex 2 Zinc stearate
P. ex 3 Iruganox 1010
P. ex 4 Lauryl·stearyl·thiopropionate
P. ex 5 Tri(t-nonylphenyl)phosphite
P. ex 6 Iruganox 1010
 Zinc stearate
P. ex 7 BHT
 Calcium stearate
P. ex 8 Iruganox 1010
 BHT
 Zinc stearate

(2) Wt Composition (wt%)

(3) Static charge

(a) Right after application
(b) After 7 days

Example	(1) 化 合 物	(2) 配 合 量 (重量%)	(3) 静電圧 (静電ボルト)	
			a 印加直後	b 7日経過後
実施例 2	ステアリン酸亜鉛	0.5	- 4200	- 3500
" 3	イルガノツクス 1010	0.2	- 3600	- 2000
" 4	ラウリル・ステアリル チオジプロピオネート	0.3	- 4000	- 3000
" 5	トリ(t-ノニルフェニル) ホスファイト	0.5	- 3700	- 1500
" 6	{イルガノツクス 1010 ステアリン酸亜鉛	0.2 0.5	- 4000	- 3600
" 7	{BHT ステアリン酸カリシウム	0.1 0.1	- 4300	- 3500
" 8	{イルガノツクス 1010 BHT ステアリン酸亜鉛	0.2 0.1 0.5	- 3900	- 3000

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